

# **Improving Active Living in Spartanburg County: Report on Progress and Recommendations for the Future**

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Submitted March 11, 2010

## **Executive Summary**

Active Living Research is pleased to present this report as a follow-up to a 2002 white paper. Based partly on the earlier paper, the Mary Black Foundation (MBF) chose Active Living as one of two priority funding areas to improve the health and wellness of people and communities of Spartanburg County, SC. At that time, we believed that the Foundation was forward thinking in their mission and taking a leadership role on a winning health issue. Indeed, years later, the rest of the country has validated this decision. The Convergence Partnership, a consortium of large health-oriented foundations, has launched a similar effort targeting active living and healthy eating. In February 2010, the First Lady and President Obama announced their goal to reverse childhood obesity within a generation by taking a multi-faceted approach that features environment and policy changes. This vision will undoubtedly result in much-needed federal coordination of policies, programs and environmental changes that will complement, but not substitute for, the work of foundations and organizations at the local level. It is now well accepted that healthy environments and policies are needed to support individuals' healthy choices. The MBF can be confident that it has made a sound investment in the long-term health and wellness of the Spartanburg community.

This report is organized into five sections:

**Section I** offers recommendations for future MBF funding priorities to build on grant activities over the past 7 years, fill gaps, and reflect knowledge gained through rapidly growing research.

We believe the Foundation has developed and should retain the existing grant framework supporting environment, program, and policy initiatives for walking and biking. This includes acknowledging Community Champions and providing travel grants. We offer several ideas on how the Foundation can refine its current grantmaking and evaluation. We also offer recommendations for new directions in grantmaking based on our expertise and a review of the Foundation's prior grantmaking. One focus of the recommendations is to target more funding to children and disadvantaged groups.

**Section II** provides an update on the relevant scientific literature for physical activity and health. This section summarizes the justification for targeting physical activity by describing the causal links between physical activity and disease. We highlight some of the critical trends and disparities in disease and physical activity. This section also provides the Foundation with updated national physical activity guidelines for youth, adults, and older adults.

**Section III** updates the relevant research on Active Living. This section summarizes key findings from numerous studies from the fields of urban planning, leisure science, sports medicine, public health, social science and policy that support environmental influences on physical activity. These studies examined different components of an Active Living environment, such as trails, parks, mixed land use, recreation facilities, safety, and aesthetics. This summary shows that the evidence for Active Living interventions is getting stronger and more useful for indicating evidence-based approaches for promoting physical activity across the lifespan.

**Section IV** Review of Past Grant Funding Activities [Sensitive Grantee Information Redacted]

**Appendix** offers case examples of effective Active Living interventions around the country. This section highlights the impact of safe routes to schools, bicycling infrastructure, and playground interventions for children's active play.

As noted in our first white paper, we fully recognize we are not local residents and do not share your intimate knowledge of Spartanburg County. However, we hope to offer a useful perspective from extensive research and experience in struggling with the issue of how to improve the health of an increasingly sedentary population – a problem seen in virtually every county across the country.

## **Section I: Recommendations for Future Funding Strategy**

We offer the Mary Black Foundation recommendations for prioritizing its grant funding over the next several years. This section is based upon an analysis of past MBF grants, consideration of recent research, and our expertise in Active Living. We have organized the recommendations into three categories: Continue, Revise, New Directions

### **Recommendations to Continue Current Grantmaking**

- Retain the successful grant framework supporting environment, program, and policy initiatives. This kind of multi-level approach is expected to be the most effective and long-lasting. The smallest investment should be made in programs, because they have fleeting effects, but engage partners to increase availability of physical activity programs and build their capacity to do so.
- Continue to recognize champions and educate partners through travel grants. These small investments help achieve several goals and build support, partnerships, and visibility for the overall effort.
- Continue to promote walking and biking to destinations. Active transportation has been effectively removed from most Americans' lives due to low-walkable community designs and transportation systems devoted to automobile transport. Most Americans do not have a realistic choice to walk and bike for transportation. Creating more walkable and bikeable communities could have a permanent effect on physical activity, traffic congestion, injury prevention, and environmental sustainability. The policies needed to achieve walkable and bikeable communities can be complex and politically challenging. However, the research indicates the impact on health, the environment, and even economic outcomes can be substantial. A modest increase in efforts to create more walkable cities and towns is recommended. Examples include:
  - Supporting groups that advocate for policies like zoning reform (“form-based codes”) to encourage mixed use development, complete streets policies that make streets safe for all users, and increased funding to bring sidewalks and bike paths to more neighborhoods.
  - Working with banks to increase their receptivity to funding unfamiliar mixed use projects may be needed.
  - Convening working groups of elected officials, city staff, health professionals, and community representatives to develop strategies to promote alternative policies. Different working groups and approaches may be needed for each major jurisdiction. [www.smartgrowthamerica.org](http://www.smartgrowthamerica.org)

### **Recommendations to Revise Current Grantmaking and Evaluation**

- Identify opportunities to implement all three strategies (environments, policies, programs) in selected locations to create high-impact communities that can serve as models for others. For example, within a localized neighborhood or community that now has trails, enhance past grantmaking to improve access and aesthetics, promote the use of trails, and pursue policies to make road crossings at access points safer by slowing traffic or adding signage.

- Make changes to the overall evaluation approach. Data collected so far need to be reanalyzed to produce annual estimates of meeting physical activity guidelines and other outcomes, so trends can be detected. Trends should be examined by season, by sex, by age group, and by city versus county residents if possible. The evaluation would be more efficient if smaller samples were surveyed every six months and summarized in graphs so trends can be observed.
- Conduct more focused evaluations of specific interventions, using the study of the MBF Rail Trail as a model. Direct observations of physical activity and intercept interviews with users of new or improved built environment features or new programs would provide valuable feedback.

### **Recommendations for New Directions in Grantmaking**

- Increase the focus on active living interventions targeting children and youth. Environmental and policy changes to support youth making healthy choices tend to receive widespread public support. Changes made to support youth tend to be useful for the whole community. Some examples of evidence-based intervention strategies that could be supported include:
  - *Safe Routes to Schools.* MBF could assist schools in disadvantaged areas to apply for federal and state funds for engineering projects and promotional activities. See Appendix and <http://www.saferoutespartnership.org/>
  - *Joint use agreements.* Schools are the most widely available recreation facilities, but they are the least used. Joint use agreements with park and recreation departments or other physical activity providers can be used to make school facilities available to students and the broader community when school is not in session. Assisting low-resource schools in developing agreements could bring recreation facilities to communities that often lack parks. <http://nplanonline.org/focus/schools>
  - *School ground renovations.* Improving the recreation facilities at schools so they meet the needs of the surrounding community has been an effective approach, especially when combined with physical activity and other programs. The Learning Landscapes project in Denver has pioneered this approach and improved dozens of schools in low-income areas. [www.learninglandscapes.org](http://www.learninglandscapes.org)
  - *Playground markings.* Research from the UK has shown that merely painting game patterns on playgrounds can stimulate children to be more active. This is a low-cost intervention that could easily be implemented in every school, preschool, and day care center. See Appendix and <http://www.peacefulplaygrounds.com/>
  - *Physical education policy.* PE is the only physical activity program that can affect all children over many years. PE tends to be surprisingly inactive though evidence-based approaches are widely available. Improved PE is especially needed in low-resource schools, and adoption of quality programs can create long-term changes. [www.sparkpe.org](http://www.sparkpe.org) and <http://www.calendow.org/Article.aspx?id=3920>

- *Recess and classroom activity breaks.* Physical activity during recess and classroom breaks has been shown to improve attentiveness in class and academic achievement. Training teachers to lead activity breaks and providing equipment and supervision during recess are cost-effective ways to integrate activity throughout the school day. [http://www.activelivingresearch.org/files/Active\\_Ed\\_Summer2009.pdf](http://www.activelivingresearch.org/files/Active_Ed_Summer2009.pdf)
- Targeting interventions to disadvantaged communities is critically important. Interventions that target the entire population often result in fewer benefits to low-income and racial-ethnic minority populations, thus perpetuating health disparities. Chronic diseases are concentrated in communities that tend to have less-supportive environments and fewer programs. Several of the youth-serving strategies described above include recommendations to target disadvantaged communities, but some additional approaches should be considered.
  - In working with disadvantaged communities, it is essential to collaborate closely with representatives of those communities, because they often have negative experiences of “help” coming from outside the community. Jointly developing solutions is likely to be more effective, leading to strategies that are embraced by the community and meet their needs. Good examples can be found at [www.activelivingbydesign.org](http://www.activelivingbydesign.org)
  - There are “park deserts” in many of these communities. It would be useful to identify communities that have the least access to parks, then work to find ways of increasing recreation resources, which could include joint use agreements or acquiring land for new parks.
  - The quality of parks is likely to be lower in disadvantaged communities. Thus, assessing the quality of parks in selected areas could be useful. Consider amenities that would support physical activity such as playground equipment variety and maintenance, basketball courts, walking trails, shade trees, water fountains, and restrooms. Also assess factors that would discourage use like graffiti, trash, and gang activity. You may need to develop an improvement plan specific to each community. [http://www.activelivingresearch.org/files/Synthesis\\_Mowen\\_Feb2010.pdf](http://www.activelivingresearch.org/files/Synthesis_Mowen_Feb2010.pdf)
- Invest in the aesthetics of communities. A surprising finding from the research is the important role of aesthetics in promoting physical activity. Even when parks are close to homes, people are more likely to use the park when it is attractive, meaning it has varied landscaping and interactive features but is free of graffiti and trash. Similarly, people are more likely to walk in their neighborhoods when they are attractive. As one would expect, aesthetics are worse in low-income communities. Improving aesthetics is a realistic option that could be accomplished with community involvement and modest cost. Planting trees along streets and in parks, putting murals on large walls, painting utility boxes, removing graffiti, and tearing down abandoned buildings for pocket parks or playgrounds have been done elsewhere. Such improvements could increase property values and thus revenues to the owners and the city.
- America Walks, the national pedestrian advocacy group, is kicking off a “20 is plenty” campaign. The goal is to reduce speed limits on residential streets to 20 mph, with the rationale that lower speeds lead to fewer pedestrian deaths and attract more people to walk

and bike. This campaign was adopted from Columbia, MO which has had several successful projects to improve walking and cycling. This could be a relatively easy policy “win” for MBF. <http://www.americawalks.org/>

- Focus on rural residents. Obesity rates are high in rural areas. This may be partly because of reduced access to recreation facilities and programs and irrelevance of walkable environments, combined with increasing mechanization of farm work and time spent in vehicles. It is a challenge to create activity-friendly rural environments, but Active Living Research grantees have been working on this problem and could provide useful consultation. We recommend convening meetings of rural residents to assess their interests and needs related to active living, then developing a plan to target interventions for this high risk group.
- Create GIS tools. GIS (Geographic Information Systems) is powerful mapping software that is being used more and more to support community change. Having online access to maps or software that show each neighborhood’s access to trails, parks, shopping within walking distance, schools open to the community, streets with low speed limits, sidewalks, bicycle parking, and even street trees can be useful to individuals and your partner organizations. Much of this information is available but scattered among city and county agencies, utilities, and companies. Community groups could be engaged to assess their neighborhoods and contribute data. Building the capacity of the county health department to gather, analyze, and make the data available online could contribute to planning, targeting, and evaluating the active living initiative.

## **Section II: Update on Physical Activity and Health**

### ***Prevention of Disease and Death: Physical Inactivity in Context***

The majority of death today is caused by chronic disease. Chronic diseases are preventable by modifying behaviors such as tobacco use, alcohol consumption and physical inactivity. Physical inactivity is the 4<sup>th</sup> leading cause of chronic disease.<sup>1</sup> Physical activity has been linked scientifically to reduced risk of several diseases, reduced complications from disease, and is an effective strategy to prevent obesity and maintain weight loss.<sup>2</sup> The 1996 Surgeon General’s Report<sup>3</sup> and more recent evidence<sup>4</sup> document the direct links between the lack of physical activity and numerous health conditions including:

- |                         |                     |               |
|-------------------------|---------------------|---------------|
| •Coronary heart disease | •Quality of life    | •Hypertension |
| •Colon cancer           | •Breast cancer      | •Lung cancer  |
| •Endometrial cancer     | •Obesity & Diabetes | •Blood lipids |
| •Depression & Anxiety   | •Immune functioning | •Strokes      |

Increasing physical activity to recommended levels would prevent approximately 150,000 deaths from cardiovascular disease, over 20,000 deaths from cancer and 20,000 deaths from diabetes each year.<sup>1</sup> To put this in context, physical inactivity is linked to 3 times more deaths each year than alcohol abuse. Tobacco use, high blood pressure, and overweight and obesity are the only risk factors causing more disease and ultimately more mortality than physical inactivity.<sup>1</sup>

### *National and Local Disease Rates*

- ✓ Cardiovascular diseases (CVDs) - including heart failure, coronary heart disease, strokes, and high blood pressure - account for more deaths than any other disease in the United States.<sup>5</sup> More people die from CVD every year than from cancers, chronic respiratory diseases, and accidents combined. CVD contributes directly or indirectly to 56% of all U.S. deaths.<sup>6</sup> In Spartanburg County, CVD contributes to approximately 700 deaths yearly.<sup>7,8</sup>
- ✓ Cancer is the second leading cause of death in the U.S., and contributes to 25% of all deaths. Over 500 people die from cancer in Spartanburg County yearly.<sup>8</sup>
- ✓ Diabetes is the 5<sup>th</sup> leading cause of death in the U.S., and 7<sup>th</sup> leading cause in Spartanburg County.<sup>9</sup> In 2007, Spartanburg County had approximately 28,000 adults living with diabetes and a total of 96 died.<sup>8</sup>
- ✓ Obesity is an epidemic in the U.S and a national priority. Current national estimates are that 68% of adults are overweight or obese and 34% are obese.<sup>10</sup> About 33% of youth are overweight or obese.<sup>11</sup> Between 70% and 80% of obese youth become obese adults. About 70.3% of adults living in Spartanburg County were overweight or obese in 2007.<sup>12</sup>

### *Important Disparities in Diseases:*

- CVDs - Highest prevalence rates among African Americans.<sup>6</sup> More women die from cardiovascular disease than men.
- Cancer – African Americans are more likely to develop cancer than any other racial/ethnic group.<sup>13</sup>
- Type 2 Diabetes – Among adults, diabetes has increased in all age groups, but disproportionately affects the elderly. Almost 25% of adults 60 years and older have diabetes. Hispanics and African Americans have a higher prevalence of diabetes than whites.<sup>6</sup>
- Obesity – The prevalence of obesity is higher among African Americans and Hispanics compared to whites. Half of African American women are obese.<sup>6</sup>

### *National and Local Trends in Physical Activity*

- ✓ Between 2001 and 2007, the proportion of U.S. adults meeting physical activity recommendations increased slightly from 45.3% to 48.8%.<sup>14</sup>
- ✓ South Carolina adults had a similar, but slower increase from 45.3 to 46.8% during the same period.<sup>14</sup>
- ✓ The proportion of U.S. youth in grades 9 to 12 who met guidelines declined between 2005 and 2007 from 35.8% to 34.7%.<sup>11</sup>
- ✓ South Carolina's youth, however, increased their activity from 29.8% to 38% over the same period.<sup>11</sup>

These improvements for South Carolina youth are encouraging. However, these statistics also indicate that over half of adults and almost two-thirds of adolescents still do not meet national recommendations. Moreover, a national study that measured physical activity objectively (using wearable motion sensors called accelerometers) with a representative sample of U.S. children and adults, found that fewer than 8% of adolescents, fewer than 4% of adults, and fewer than 2.4% of older adults met national guidelines.<sup>15</sup> **By either self-report or objective**

**measurement, the majority of adolescents and adults do not meet physical activity recommendations.**

*Important Disparities in Physical Activity:*

- Physical activity declines precipitously once children enter adolescence.<sup>11</sup>
- Declines in physical activity continue throughout adult and senior years.
- Females of all ages are less active than males. Adolescent girls are about half as likely to meet the 60-minute per day recommendation than boys.<sup>11</sup>
- Disparities by race/ethnicity are mixed. Self-report data suggest African American and Hispanic adults and youth are less active than white adults and youth.<sup>11, 15-17</sup> Motion sensor data suggest white adults and youth are less active than African American and Hispanic adults and youth. Mixed findings suggest that Caucasians perform more leisure-time activity while minority groups perform more transportation- and occupation-related physical activity.
- Leisure-time activity is higher among more educated adults.<sup>17</sup>

**Recommendations for Physical Activity by Age Group**

According to the *2008 Physical Activity Guidelines for Americans*, the following updated physical activity guidelines are recommended for youth, adults and seniors:

<p><b>Adults</b></p>	<ul style="list-style-type: none"> <li>• Should participate in at least 150 minutes (2 hours and 30 minutes) of moderate-intensity activity per week, or 75 minutes (1 hour and 15 minutes) of vigorous-intensity physical activity per week, or an equivalent combination of moderate- and vigorous- intensity activity.</li> <li>• Additional health benefits possible through greater amounts of physical activity (i.e. 300 minutes (5 hours) of moderate-intensity per week, or 150 minutes of vigorous-intensity aerobic physical activity per week, or an equivalent combination of moderate- and vigorous-intensity activity).</li> </ul>	<ul style="list-style-type: none"> <li>• Moderate intensity activities that raise the heart rate, including brisk walking (3-4 mph) gardening, climbing stairs, housework</li> <li>• Should be performed in bouts of at least 10 minutes, and preferably, it should be spread throughout the week.</li> <li>• Can be accumulated from leisure, occupational or transportation.</li> </ul>
<p><b>Older Adults</b></p>	<ul style="list-style-type: none"> <li>• Adult guidelines apply, unless health conditions prevent older adults from performing 150 minutes a week.</li> <li>• Should be as physically active as their abilities and health conditions allow.</li> </ul>	
<p><b>Children and Adolescents</b></p>	<ul style="list-style-type: none"> <li>• Should participate in 1 hour or more of at least moderate-intensity activity every day.</li> <li>• At least three times a week, some of these activities should be vigorous-intensity, and help to enhance and maintain muscular strength, flexibility and bone health.</li> </ul>	<ul style="list-style-type: none"> <li>• Important to encourage physical activities that are age appropriate, enjoyable, and offer variety.</li> </ul>

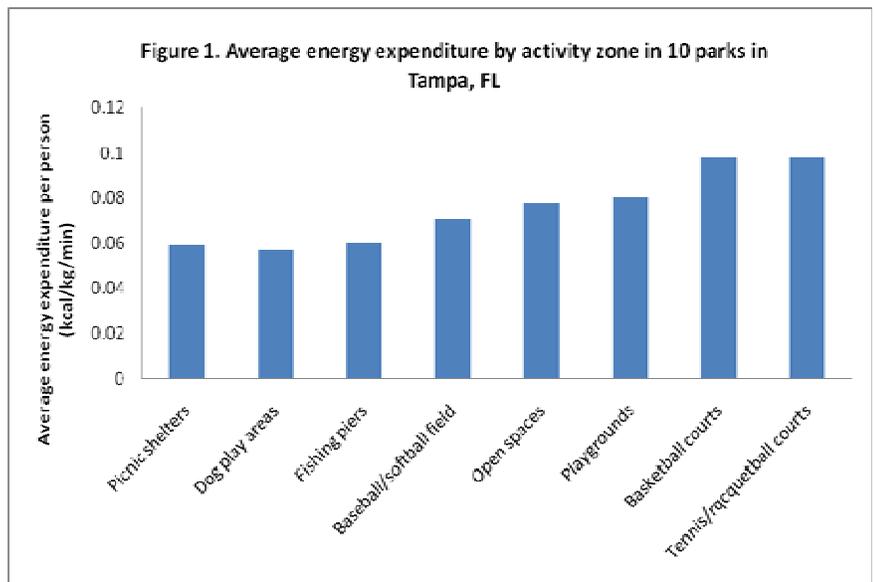
Meeting activity recommendations is the ideal that links physical activity to the strongest health benefits. Because the majority is physically inactive, and therefore susceptible to greater health risk, it is important to note that the greatest potential for reducing the public’s risk is by promoting those sedentary to become moderately active, rather than promoting more activity among those already active.<sup>18, 19</sup>

### Section III: Research Update on Built Environment and Physical Activity

Over the last decade, there has been an increasing realization of the role environments play in influencing physical activity and preventing chronic diseases and obesity.<sup>20</sup> Numerous studies have supported the link between environments and physical activity, with contributions from the fields of urban planning, leisure science, sports medicine, public health, social science and policy. These studies have examined different components of an active living environment, such as trails, parks, mixed land use, recreation facilities, safety, and aesthetics<sup>21</sup>. Many communities have adopted programs and policies to create active living environments, sometimes guided by the research, and many have successfully promoted physical activity. This section summarizes recent research on physical activity environments and policies that is most relevant to MBF's initiatives.

#### *Parks: a place to exercise and play*

Parks are one of the main locations for recreational physical activity for adults and youth.<sup>22</sup> Several studies have found that the distance between home and a park was one of the most important factors in park use. In a study in Los Angeles County, researchers directly observed 8 public parks, and interviewed hundreds of park users and local residents. Findings suggested that 87% of park users lived within one mile of the park, and those who lived close to parks were 40% more likely to exercise frequently.<sup>23</sup> One mile or less was recommended as a reasonable distance.



Physical activity in parks is often supported by facilities (e.g. trail, open field, pool, tennis court) and amenities (e.g. drinking fountain, bathroom, trash can), which provide opportunities for recreational physical activity. A study from Canada found that parks with a greater number of facilities and amenities had more observed physical activity among adults, even after adjusting for differences in distance, neighborhood safety and aesthetics.<sup>24</sup> Different facilities in parks may contribute differently to park users' physical activity. A study in Chicago, IL and Tampa, FL found significant differences in energy expenditure by activity zones in parks (Figure 1).<sup>25</sup> For example, tennis/racquetball courts resulted in almost two times more energy expenditure than picnic shelters, dog parks, and fishing piers.

#### *Trails can get people moving*

Multi-use trails provide individuals with opportunities to increase their walking, running, skating, and biking for recreation and transportation.<sup>26-28</sup> Trails not only promote physical activity among habitual exercisers, but also stimulate previously sedentary individuals to be active. A West Virginia study evaluated physical activity outcomes of constructing a trail in a rural community. Among trail users surveyed, nearly a quarter of users were new exercisers.

About 98% of new exercisers and 52% of habitual exercisers reported increased exercise since the new trail was built.<sup>26</sup>

Trails can benefit communities even more when they are built near population centers or link destinations.<sup>27</sup> Construction or maintenance of trails can be cost-effective. In Lincoln, NE, a cost analysis suggested that the annual cost for building and maintaining trails was only about \$98 for each person who became more active.<sup>28</sup> This seems like a bargain since the average active person has about \$300 lower health care costs each year than inactive people.

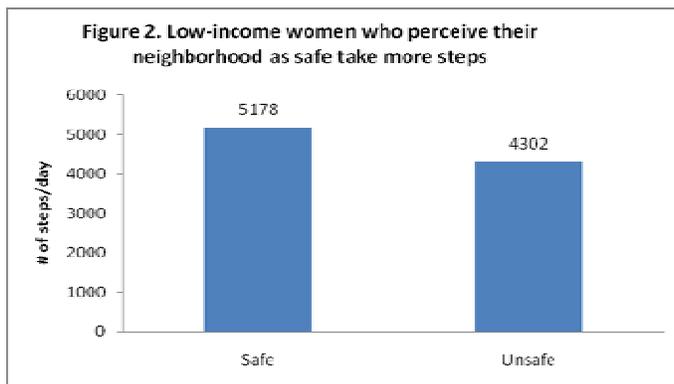
### ***Beauty attracts people to be active outdoors***

Aesthetic features not only make a neighborhood more enjoyable to look at, but also more pleasant to walk in. More and more evidence supports the role aesthetics play in physical activity. In 2001, a study among 3392 Australian adults found that the “attractiveness” of neighborhoods was significantly associated with more walking.<sup>29</sup> Since then, studies from multiple countries replicated the findings and identified aesthetics as an important determinant of physical activity, especially walking.<sup>30,31</sup>

Studies have identified different aspects of neighborhood aesthetics, including enjoyable scenery,<sup>32</sup> lack of graffiti and litter,<sup>33</sup> attractive public open spaces,<sup>34</sup> street trees,<sup>35</sup> and interesting things (e.g. nice architectures, gardens, street art) to look at.<sup>36</sup> These studies suggested that improvement in those aspects of neighborhoods may lead to neighborhood satisfaction and active living.

### ***Safety and physical activity***

Studies have examined how safety impacts individuals’ physical activity and weight outcomes. Researchers have identified two domains related to safety: crime and traffic. Surprisingly, studies on safety and physical activity have mixed findings. Although several studies found that traffic hazards and crime rates have associations with physical activity, especially among children,<sup>37,38</sup> other studies did not find a connection.<sup>39</sup>



In 2006, researchers examined Body Mass Index (BMI) in 10 urban and rural communities throughout the U.S., and found that children were more likely to be overweight if their parents were concerned that the neighborhood was unsafe.<sup>40</sup> A 2009 study concluded that children whose parents had safety concerns about their neighborhoods tended to spend more time watching TV, which led to overweight and obesity.<sup>41</sup> In 2007, a study in metropolitan

Boston showed that low-income women who perceived their environment to be safe took an average of 20% more steps per day compared to their counterparts who perceived the environment to be unsafe (Figure 2).<sup>42</sup> A longitudinal study in southern California found that higher traffic density around homes of 9-10-year-olds was associated with excess weight gain at the age of 18, possibly because heavy traffic prevented young people from safe walking and biking.<sup>43</sup>

### ***Environmental disparities create barriers for the poor***

Research on environmental disparities has provided a complicated picture of environmental conditions that support and limit physical activity. Although Hispanic and African American populations are more at risk for obesity<sup>6</sup> several studies found that African Americans and Hispanics are more likely to reside in areas with higher population density, land use mix, and street connectivity, which should support physical activity.<sup>57, 58</sup> However, these populations are more likely to report poor aesthetics and safety in their neighborhoods,<sup>59, 60</sup> which discourage physical activity. Some studies suggested that for the minority communities, the social environment may play a more important role than the built environment in physical activity.<sup>61</sup> Thus, crime and incivilities (trash, graffiti) in low income neighborhoods may overcome the beneficial effects of walkable neighborhoods.

In terms of parks, trails, and recreational facilities, lower-income and predominantly minority neighborhoods tend to have less access. A nationally representative study of more than 20,000 adolescents found that individuals living in high-minority and low-educated neighborhoods were half as likely to report having at least one public or private recreational facility.<sup>62</sup> A study of 2,723 adults in New York, Maryland and North Carolina found that 70% of predominantly African-American neighborhoods and 81% of predominantly Hispanic neighborhoods did not have any recreational facilities, in contrast to 38% of predominantly White neighborhoods lacked such facilities.<sup>63</sup>

### ***Engineering safer roads for physical activity***

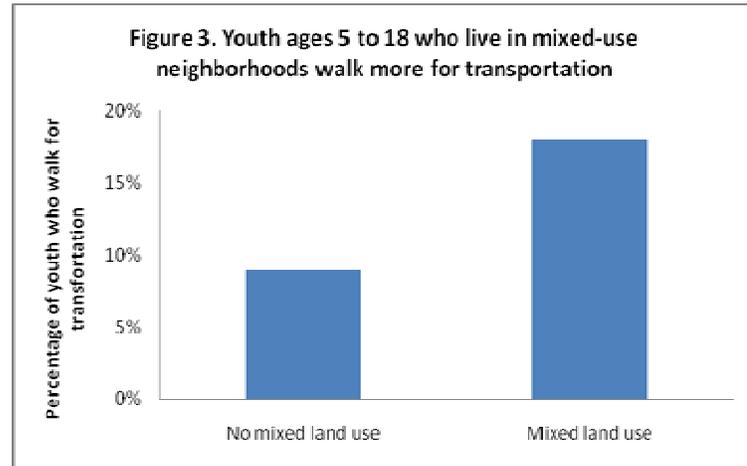
One of the most frequently cited safety concerns for walking and biking is sharing roads with automobiles. Studies have shown that the speed and volume of traffic are barriers to physical activity in the neighborhood.<sup>44</sup> Traffic can be engineered to be more pedestrian and bike friendly. Traffic calming slows traffic speed by installing speed bumps and narrowing streets. A review of five studies in United Kingdom concluded that traffic calming can lead to increased walking and cycling.<sup>45</sup> Traffic lights can also control the speed and flow of traffic, and provide a safer environment for pedestrians and cyclists. A study in Australia found that the number of traffic/pedestrian lights was positively associated with adolescent girls' walking and cycling in the neighborhoods.<sup>44</sup>

Sidewalks and bike lanes along streets provide safe opportunities for active commuters to walk or bike. Studies have repeatedly found that the presence, condition, and length of sidewalks are related to walking among adults and young people.<sup>46-48</sup> In a study published in 2009, researchers examined environmental features and physical activity among 11,541 adults in 11 countries and found that individuals living in neighborhoods with sidewalks were about 50% more likely to meet physical activity guidelines.<sup>49</sup>

### ***Land use policies support active travel***

Active travel refers to “non-motorized” transportation such as walking, bicycling, or skating to destinations. It contributes significantly to total physical activity. Active transport reduces driving, greenhouse gas emissions, air pollution, and traffic congestion. Growing evidence supports the link between land use and active transport.

In 2005, the Transportation Research Board and the Institute of Medicine (TRB-IOM) examined the evidence and concluded there is a consistent relationship between land use patterns and physical activity.<sup>53</sup> The report highlighted several important factors in land use, such as land use mix and population density. Land use mix refers to diversity or variety of land use, such as residential, retail, or office uses; it provides multiple destinations within close proximities, and therefore facilitates active travel to destinations. A study in Atlanta GA found that youth were twice as likely to walk over a 2-day period if they lived in neighborhoods with mixed land use (Figure 3).<sup>54</sup> A study of adults reported those living in high-walkable neighborhoods did 41 more minutes of physical activity and were much less likely to be overweight and obese than those living in low-walkable suburban neighborhoods.<sup>46</sup> Similar findings were replicated in other U.S. and international studies.<sup>55, 56</sup>



Population density is an important indicator for sprawl or suburbanization. Communities with low population densities have difficulty supporting local businesses, rely on the automobile as the dominant mode of transportation, and residents rarely have the choice to walk or bike to destinations because of large distances. The TRB-IOM report strongly advocated for changes in urban design, zoning, laws and policies to promote “traditional neighborhoods” with higher population density, land use diversity and access, shorter block length and better street connectivity. Though policy change is difficult, and improving walkability of communities can take years, the effects should be permanent.

### ***Public transit encourages active travel***

Using public transit contributes to overall physical activity. The average American public transit user spends 19 minutes walking to and from transit stops, which helps achieve recommended physical activity levels.<sup>50</sup> In the same 11-country study, researchers found that adults living within 10-15 minutes of a transit stop were 32% more likely to meet physical activity guidelines.<sup>49</sup> A study in Salt Lake County, UT with 5,000 randomly selected licensed drivers found that adults were less likely to be overweight or obese if they lived close to public transit stops.<sup>51</sup> Policies designed to improve public transit were associated with more walking and meeting physical activity guidelines.<sup>52</sup>

## **Section IV: Review of Past Grant Funding Activities**

[Sensitive Grantee Information Redacted]

### **Conclusion**

In seven years, MBF has made significant investments in Spartanburg County to increase physical activity. The Foundation has adopted Active Living as a priority area and has implemented a multi-level strategy to fund several types of organizations that aim to foster activity-friendly environments, programs and policies. With the help of the MBF, the city of Spartanburg was designated a “Bicycle-Friendly Community,” a prestigious award by the League of American Bicyclists. The impact of the Foundation’s contribution to promoting health through environmental and policy change will likely be felt for several generations. Because of MBF’s work, Spartanburg County can be held up as a model for how communities can work together to make healthier places for all their citizens. This work is well advanced, but it is not completed. We commend you for making wise choices about the Active Living initiative and encourage you to continue the Foundation’s leadership in this area.

To maximize your impact in the future, we recommend some new priorities. More investments targeting youth and disadvantaged populations could have a large impact. Parks are an important setting for physical activity, especially among youth and low-income populations, and an increased investment in improving access to, and quality of, parks is likely to make a difference in the lives of many. We have identified several evidence-based approaches for promoting Active Living that have emerged in the past few years, and we recommend MBF to adopt several of them. We look forward to following the Foundation’s progress in creating a more active Spartanburg County.

## **Appendix: Examples of Effective Active Living Interventions**

### ***Safe Routes to School (SRTS)***

SRTS is a federal program to create safe, convenient, and fun environments for children to walk or bicycle to and from school. The ultimate goal of the program is to promote physical activity and improve health, safety, and well-being of children.

SRTS programs examine conditions around schools and conduct projects to reduce traffic and air pollution, improve safety, and build infrastructure such as sidewalks, bike lanes and crosswalks. SRTS covers five areas: engineering (infrastructure building), education (teaching children about safety skills and the importance of active commuting), evaluation (evaluating the program and making needed adjustments), enforcement (adult school crossing guards to enforce traffic laws), and encouragement (generating excitement and fun in walking and bicycling). SRTS brings together a variety of community groups to work together toward the goal of promoting health and fitness among children.

An evaluation of the California Safe Route to School program found that children walked/biked more if they passed SRTS construction sites on the route to school, compared to children who did not pass SRTS sites on the way.<sup>64</sup> In Marin County, CA, after the SRTS program, classroom surveys found a 64% increase in the percentage of students who walked to school, a 114% increase in the percentage of students who biked to school, and 39% decrease in trips by private vehicles carrying only one student.<sup>65</sup>

Federal funds for SRTS are available by applying through state Departments of Transportation. However, low-resource schools are less likely to apply or to win grants.

### ***Portland: the Bicycle City***

Portland, OR is widely considered one of the most bicycle friendly cities in North America. What Portland has achieved in promoting active transport and reducing dependence on automobiles came largely from smart city planning.

In 1996, the city of Portland adopted a Bicycle Master Plan to increase the networks of bikeway systems. Before the plan, there were only 111 miles of developed bikeways in the city. In 2001, five years into the plan, the number increased to 228 miles, including developed bike lanes, bicycle boulevards (designed to encourage biking and discourage car use) and off-street paths.<sup>66</sup> In the meantime, the city developed more and better bicycle parking, built “blue bike lanes” and other facilities to improve safety,<sup>67</sup> and promoted bike rentals and other bike related business.

An early evaluation of the Bicycle Master Plan suggested that share of workers commuting by bicycles increased from 1.1% in 1990 to 6.0% in 2008.<sup>68</sup> A study funded by Active Living Research found that bicycle infrastructure that protected cyclists from traffic was heavily used. In February 2010, the Portland city council set a very ambitious goal that 25% of all trips in 2020 would be by bicycling, based partly on the findings that the bikeways were being used.<sup>69</sup> The success of Portland is a good example of how a city’s transportation habits can be changed through planning and well-designed projects.

***Playground interventions and children's active play***

Childhood obesity is a growing epidemic in the U.S,<sup>70</sup> and the built environment plays a critical role in children's physical inactivity.<sup>71</sup> Playgrounds are important locations for children's leisure activity.

In 2005, researchers introduced developmentally appropriate equipment to the playground (e.g. hurdles, balance beams, bean bags, and playground balls) in a preschool in Salt Lake City, UT, and observed 3-5 year-old children play before and after the intervention. Results showed an increase in children's physical activity and a decrease in sedentary behavior.<sup>72</sup>

In a study in the UK, researchers selected eight primary schools and painted the playgrounds in four schools with multicolor markings to stimulate active games. Children in schools where playgrounds were painted had an 18-minute per day increase in moderate-to-vigorous physical activity; while a small decrease was observed in control schools.<sup>73</sup> The increase lasted for at least six months. This study indicated that small environmental changes in school playgrounds could be inexpensive and effective in promoting children's physical activity.

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